UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *07/13/2006, 12/22/2008*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Specification

1.   The abstract of the disclosure is objected to because it does not commence on a

separate sheet. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-3, 10-12, and 16-18 are rejected under 35 U.S.C. 102(b) as being

anticipated by Gysling et al. (US 2003/0154036 A1).

Regarding claim 1, Gysling et al. discloses a method for analyzing a dispersion

([0031]) comprising the following steps: (a) collecting a set of original domain data

relating to an attribute of the dispersion ([0036]); (b) transforming the set of original

domain data into a transformed set of original domain data, wherein the transformed set

of original domain data is in the frequency domain ([0037]); and (c) characterizing the

dispersion using the transformed set of original domain data ([0038]).

Regarding claim 2, Gysling et al. discloses all of the claim limitations as set forth

above. Gysling et al. further discloses generating a frequency domain spectrum from

the transformed set of original domain data, wherein the frequency domain spectrum

expresses a parameter relating to the attribute of the dispersion as a function of

frequency and wherein the characterizing step is performed using the frequency domain
spectrum ([0037]).

Regarding claim 3, Gysling et al. discloses all of the claim limitations as set forth
above. Gysling et al. further discloses the attribute of the dispersion is pressure of the
dispersion ([0037], see: pressure sensors).

Regarding claims 10-12, Gysling et al. discloses all of the claim limitations as set
forth above. Gysling et al. further discloses transforming the set of original domain data
in one dimension and conditioning the set of original domain data before the
transforming step in order to reduce at least one unwanted component in the set of
original domain data by calculating a derivative of the set of original data in one
dimension ([0037]).

Regarding claim 16, Gysling et al. discloses all of the claim limitations as set forth
above. Gysling et al. further discloses collecting a plurality of subsets of original domain
data so that the set of original domain data is comprised of the subsets of original
domain data, wherein the subsets of original domain data are transformed into a
plurality of subsets of transformed original domain data, and wherein the characterizing
step is performed using the subsets of transformed original domain data (Fig. 1, see:
$P_1(t) - P_N(t)$).

Regarding claims 17 and 18, Gysling et al. discloses all of the claim limitations as
set forth above. Gysling et al. further discloses generating a frequency domain
spectrum from each of the subsets of transformed original domain data in order to
produce a plurality of frequency domain spectra and wherein the characterizing step is

performed using the frequency domain spectra, where each of the subsets of original

domain data are collected at a different value of a dispersion characterizing variable so

that the dispersion may be characterized with respect to the dispersion characterizing

variable (Fig. 1, see: $P_1(\omega) - P_N(\omega)$).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

6.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

7.   Claims 4-9, 13-15, and 19-45 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gysling et al. (US 2003/0154036 A1), as applied to claims 1and 2

above, in view of Coates et al. (US 2002/0185604 A1), in further view of Stark et al.

(USP 5,568,400).

Regarding claims 4 and 5, Gysling et al. discloses all of the claim limitations as

set forth above.

Gysling et al. does not explicitly disclose the set of original domain data is

comprised of a transmittance signal representing transmittance of electromagnetic

radiation through the dispersion over a period of time.

Coates et al. discloses a method and apparatus of analyzing lubricant oils and

functional fluids (Abstract) through measurement of the transmittance of IR radiation

though a flow through assembly to a FTIR spectrometer ([0088]-[0089]).

Gysling et al., Coates et al., and Stark et al. are analogous because all

references are directed towards methods and apparatuses for analyzing analytes

through Fourier transform techniques.

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to obtain spectral data from the transmittance of electromagnetic

radiation since the examiner takes Official Notice of the equivalence of transmission

data (Stark et al.: C1/L38, see: optical spectrum) and pressure data (Stark et al.:C1/L39,

see: vibration/acoustics analysis) for their use in the Fourier transform image analysis

art and the selection of these known equivalents to analyze a dispersion would be within the level of ordinary skill in the art.

Regarding claims 6-9, modified Gysling et al. discloses all of the claim limitations as set forth above. Coates et al. further discloses the collecting step is performed using a data collection apparatus comprising a transmittance sensor, a source of electromagnetic radiation and manipulating the dispersion to cause variations in the transmittance signal over a period of time by moving the dispersion through a conduit past the transmittance sensor (Fig. 7 and Fig. 10).

Regarding claim 35, modified Gysling et al. discloses all of the claim limitations as set forth above. Coates et al. further discloses the set of original domain data is comprised of a transmittance image representing distribution of transmittance of electromagnetic radiation though the dispersion over a spatial area (Fig. 10, see: CCD spectrograph).

Regarding claims 36-38, modified Gysling et al. discloses all of the claim limitations as set forth above. Gysling et al. further discloses transforming the set of original domain data in one dimension and conditioning the set of original domain data before the transforming step in order to reduce at least one unwanted component in the set of original domain data by calculating a derivative of the set of original data in one dimension ([0037]).

Regarding claim 39, modified Gysling et al. discloses all of the claim limitations as set forth above. Coates et al. further discloses the transforming step is comprised of

transforming the set of original domain data in one dimension along a plurality of sample

lines (Fig. 15A-15C).

Regarding claims 40 and 41, modified Gysling et al. discloses all of the claim

limitations as set forth above. Gysling et al. further discloses conditioning the set of

original domain data before the transforming step in order to reduce at least one

unwanted component in the set of original domain data by calculating a derivative of the

set of original data in one dimension ([0037]).

Regarding claim 42, modified Gysling et al. discloses all of the claim limitations

as set forth above. Coates et al. further discloses determining from the plurality of

sample lines an average value for the parameter relating to the attribute of the

dispersion as a function of frequency ([0129]).

Regarding claim 43, modified Gysling et al. discloses all of the claim limitations

as set forth above. Stark et al. further discloses transforming the set of original domain

data in two dimensions (C1/L48-49).

Regarding claims 44 and 45, modified Gysling et al. discloses all of the claim

limitations as set forth above. Gysling et al further discloses conditioning the set of

original domain data before the transforming step in order to reduce at least one

unwanted component in the set of original domain data by calculating a derivative of the

set of original data in two dimensions ([0037]).

Regarding claim 13, modified Gysling et al. discloses all of the claim limitations

as set forth above. Stark et al. further discloses transforming the set of original domain

data in two dimensions (C1/L48-49).

Regarding claims 14 and 15, modified Gysling et al. discloses all of the claim limitations as set forth above. Gysling et al further discloses conditioning the set of original domain data before the transforming step in order to reduce at least one unwanted component in the set of original domain data by calculating a derivative of the set of original data in two dimensions ([0037]).

Regarding claims 19-21, modified Gysling et al. discloses all of the claim limitations as set forth above. Coates et al. further discloses the dispersion is comprised of an emulsion comprising oil and water ([0007]) and wherein the dispersion characterizing variable is a ratio of the relative amounts of oil and water contained in the emulsion ([0150]) and wherein the dispersion characterizing variable is time ([0088]).

Regarding claim 22, modified Gysling et al. discloses all of the claim limitations as set forth above. Coates et al. further discloses the step of generating from the frequency domain spectra an expression of the parameter relating to the attribute of the dispersion as a function of both frequency and the dispersion characterizing variable in order to characterize the dispersion with respect to the dispersion characterizing variable ([0145]).

Regarding claims 23-25, modified Gysling et al. discloses all of the claim limitations as set forth above. Gysling et al. further discloses transforming the set of original domain data in one dimension and conditioning the set of original domain data before the transforming step in order to reduce at least one unwanted component in the set of original domain data by calculating a derivative of the set of original data in one dimension ([0037]).

Regarding claims 26-28, modified Gysling et al. discloses all of the claim limitations as set forth above. Stark et al. further discloses integrating each of the frequency domain spectra between an upper selected frequency and a lower selected frequency, thereby obtaining a characterization number for each of the frequency domain spectra, further calculating a derivative of the expression of characterization number as a function of the dispersion characterizing variable in order to characterize the dispersion with respect to the dispersion characterizing variable (C3/L12-35).

Regarding claims 29-31, modified Gysling et al. discloses all of the claim limitations as set forth above. Gysling et al. further discloses transforming the set of original domain data in one dimension and conditioning the set of original domain data before the transforming step in order to reduce at least one unwanted component in the set of original domain data by calculating a derivative of the set of original data in one dimension ([0037]).

Regarding claim 32, modified Gysling et al. discloses all of the claim limitations as set forth above. Stark et al. further discloses transforming the set of original domain data in two dimensions (C1/L48-49).

Regarding claims 33 and 34, modified Gysling et al. discloses all of the claim limitations as set forth above. Gysling et al further discloses conditioning the set of original domain data before the transforming step in order to reduce at least one unwanted component in the set of original domain data by calculating a derivative of the set of original data in two dimensions ([0037]).

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT EOM whose telephone number is (571)270-7075. The examiner can normally be reached on Mon.-Thur., 9:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

/R. E./
Examiner, Art Unit 1797